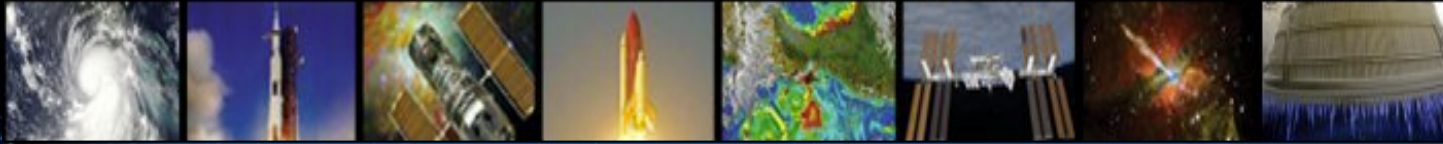


Marshall Space Flight Center

National Aeronautics and
Space Administration



NASA EEE Parts Assurance Group (NEPAG)

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NASA – Marshall Space Flight Center
MSFC/Jacobs Engineering

Prepared for Infineon, Villach Austria
May 10-12, 2016



Agenda

- NASA/Marshall Space Flight Center/Jacobs Engineering
- SLS Mission
- NEPAG Initiative

“The exploration of space will go ahead, whether we join it or not, and it is one of the greatest adventures of all time, and no nation which expects to be the leader of other nations can expect to stay behind in this race for space...”

We set sail on this new sea because there is new knowledge to be gained and used for all people...

We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because the goal will serve to organize and measure the best of our energies and skills...”

President John F. Kennedy

***Address at Rice University on the Nation's Space Effort
September 12, 1962***



NASA

50+ years of exploration and discovery

1958 – 2012

NASA Centers

- ARC
- DFRC
- GRC
- GSFC
- HQ
- JPL
- JSC
- KSC
- LaRC
- MSFC
- SSC





Marshall Space Flight Center (MSFC)



Charter: Space Launch, Propulsion, Exploration Systems,
Materials and Manufacturing, Scientific Research





Electronic Parts for Launch Vehicles and Space Exploration Missions

Some Considerations:

- Design to save power, size, and weight
- Operate in space radiation environment; have to consider the effects of radiation
- Mission reliability requires worst case analysis, proper derating
- Missions are Non-repairable!! Can't send the "Maytag" repairman up there
- Operate at high and low temperature extremes: (ie., on Mars at night)
- Other mission specific



NASA's NEPAG Initiative



- Acronym for NASA EEE (Electrical, Electronic, Electro-mechanical) Parts Assurance Group
- A forum to exchange information on electronic parts across NASA and the space parts user community
- 27 organizations representing the world-wide space community
- Leverage off of each other's experience



Our Business

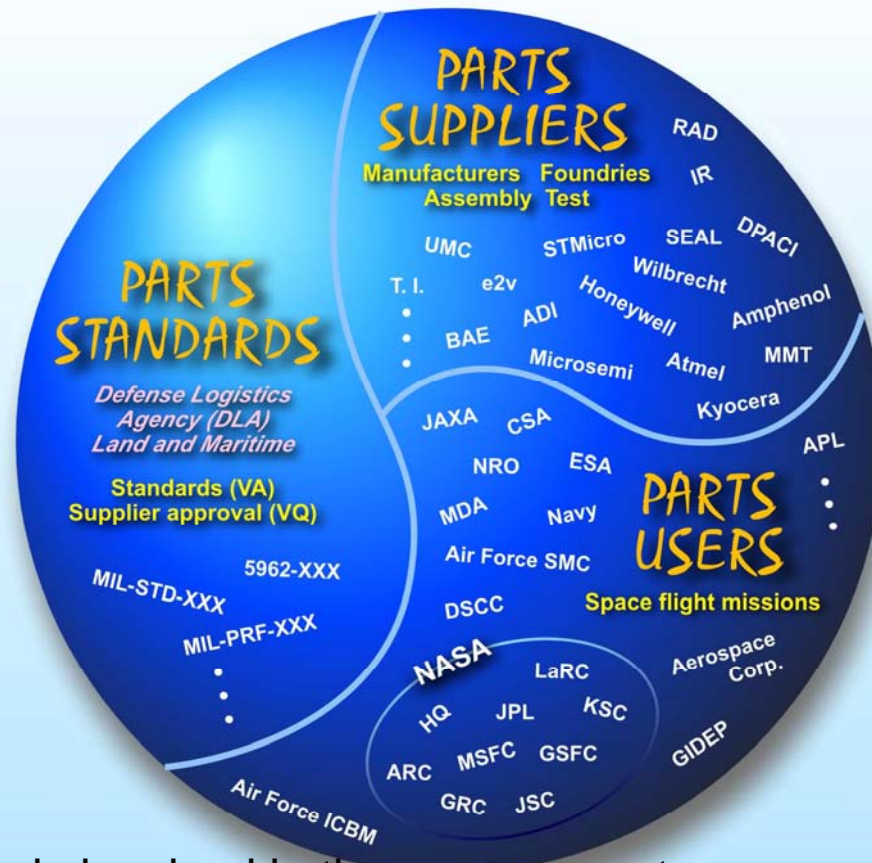


- We are involved with all aspects of electronic parts used on space flights: parts selection, quality, reliability, radiation, procurement, application, screening, failure analysis, corrective action, etc.
- Examples of electronic parts used on a space craft are: capacitors, resistors, connectors, diodes, transistors, integrated circuits, microprocessors, memories, DC/DC converters, oscillators, gate arrays, application specific integrated circuits, sensors, thermistors and others.



Space Parts World

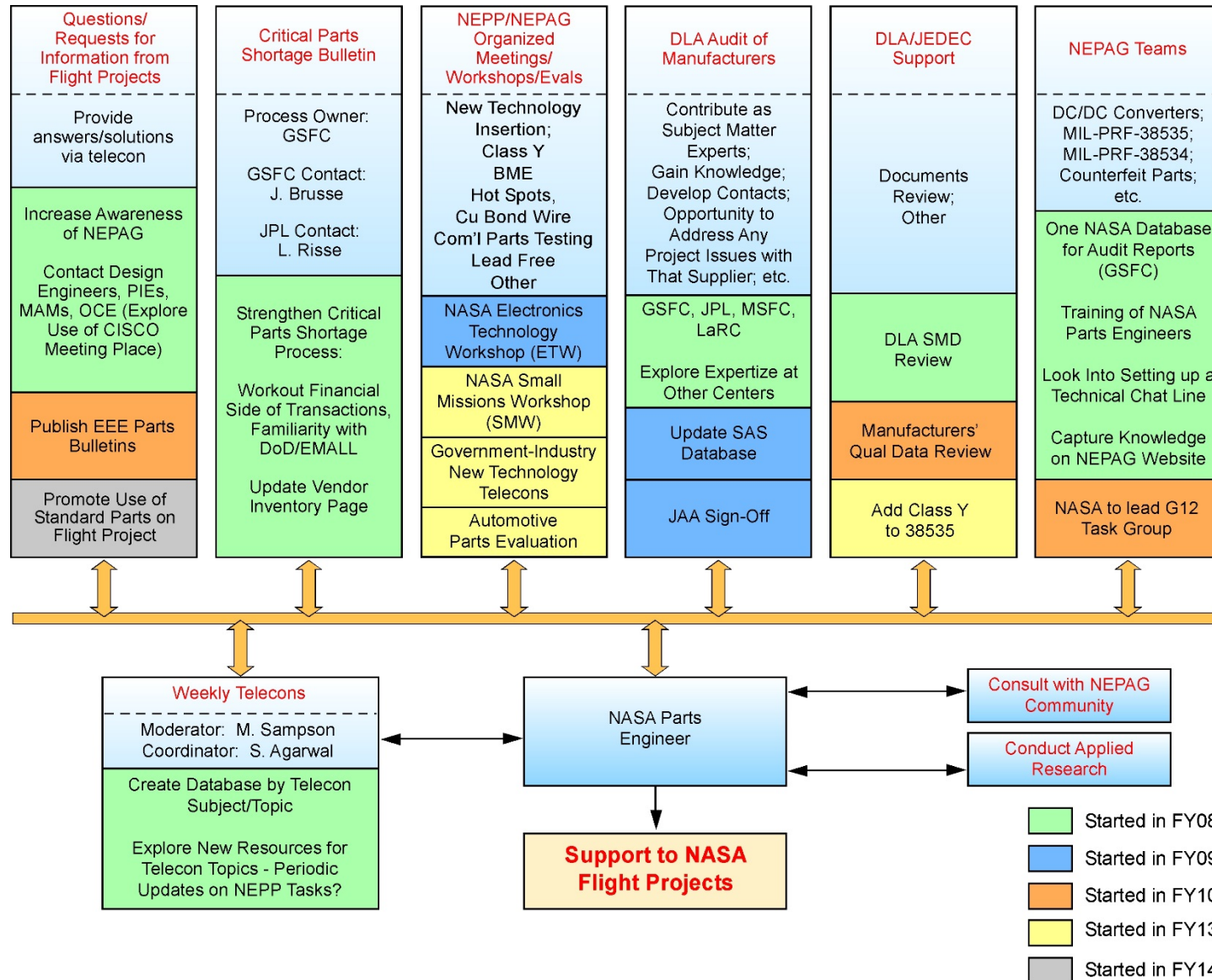
A Small Vanishing Part of the Commercial Parts World



NEPAG is actively involved in the procurement process - parts users and standards organizations join hands to ensure timely delivery of reliable parts.



MSFC NEPAG ACTIVITIES





NEPAG – One Space Community





NEPAG – Why we need good parts!

